

10. *Contributions to the Crustacean Fauna of South Africa.*—By K. H. BARNARD, M.A., D.Sc., F.L.S., Assistant Director.

No. 9. FURTHER ADDITIONS TO THE LIST OF ISOPODA.

(With 6 Text-figs.)

SHORTLY after the publication of my last paper on S. African Isopods (Ann. S. Afr. Mus., xvii, 5, 1920) I was able to consult Vanhöffen's paper on the Isopods of the German South Polar Expedition. Unfortunately, in many cases this author seems to have been only partly conversant with the literature of the subject, and several of his descriptions are entirely superficial and inadequate (*e.g.* those of the interesting Anthurid genus *Eisothistos*).

The following notes on the S. African species mentioned by Vanhöffen are offered :—

Tanais gracilis Heller. Simonstown. My *spongicola* 1914 is considered by Vanhöffen to be Heller's species. This seems quite likely, and I would be disposed to put *gracilis* on the fauna list, making *spongicola* a synonym. That the female has only one marsupial pouch is, however, not correct.

Heterotanais (?) *capensis* Vanh. The suggestion in my 1920 paper that my *Paratanais euelpis* might be this species is not valid. The number of joints in the uropods show that these two species are distinct.

Leptanthura laevigata (Stmpsn.). Vanhöffen is, I think, correct in his identification of Stimpson's species. *L. faurei* 1914 is synonymous.

Eurydice latistylis Dana. The statement that Dana's species has never been found again is quite incorrect; see Stebbing in Fauna Flora Laccad. Maldive, 1904, p. 702, and records there quoted. The species is apparently a true *Cirolana* and not an *Eurydice*.

Eurydice natalensis Vanh. This is not an *Eurydice*, but belongs to my genus *Pontogeloides* 1914. The 1st antenna is of exactly the same character, as is likewise the uropod. With the exception of the number of joints in the antennae, the only specific difference between *natalensis* and *latipes* is the notch on the outer margin of inner uropodal ramus in the latter. Vanhöffen's description, however, lacks all mention of the frontal lamina, the mouth-parts, and the pereopods.

Astacilla setosa Vanh. This is one of the several varietal forms of *Arcturella corniger* (Stebb.): see my 1920 paper, p. 391.

Antias uncinatus Vanh. Found at Simonstown. An Antarctic genus, whose occurrence here is somewhat unexpected.

Austrofilius furcatus Hodgson. This species first described from M'Murdo Sound (Antarctic) was discovered by the "Gauss" at Kerguelen and Simons-town. According to Vanhöffen there are no essential differences between his material and the type, which he apparently examined.

Paramunna capensis Vanh. Easily distinguished from the other two Cape species, *laevifrons* Stebb. and *concaivrons* Brnrld., by its serrate pleon.

FAMILY TANAIIDAE.

Leptochelia savignyi (Kröyer).

1842. *Tanais savignyi*. Kröyer, Naturhist. Tidsskr., vol. iv, p. 168, pl. ii, figs. 1-12 (♀).
 1842. ,, *dubius*. *Id., ibid.*, p. 178, pl. ii, figs. 20-22.
 1842. ,, *edwardsi*. *Id., ibid.*, p. 181, pl. ii, figs. 13-19 (♂).
 1886. *Leptochelia savignyi*. G. O. Sars, Archiv. Math. Naturwid., Christiania, vol. ii, p. 326, pl. ix, figs. 4-8 (♂ and ♀).
 1900. ,, *lifuensis*. Stebbing, *loc. cit.*, p. 616, pl. liv, C (♀), D (♂), and pl. lv, B (♂).
 1900. ,, sp. Borradaile, Proc. Zool. Soc. Lond., 1900, p. 797, pl. li, figs. 2-2e.
 1905. ,, *savignyi*. Richardson, Bull. U.S. Nat. Mus., No. 54, p. 26, text-figs. 26-28. (References and synonymy.)
 1905. ,, *dubia*. *Id., ibid.*, p. 28, text-fig. 29.
 1905. ,, *lifuensis*. Stebbing, *loc. cit.*, p. 7, pl. i, C (♂ ♀).
 1910. ,, ,, *Id.*, J. Linn. Soc., vol. xxxi, p. 216.
 1918. ,, *dubius*. *Id.*, Ann. Durban Mus., vol. ii, pt. 2, p. 62, pl. ix, A.
 1920. ,, *savignyi*. Barnard, Ann. S. Afr. Mus., xvii, 5, p. 332.

According to Miss Richardson *dubia* is distinguished from *savignyi* by a constant difference in the number of joints in the inner ramus of the uropod, the former having 5, while the latter has 6.

But in his report on Herdman's Ceylon collection Stebbing has given details of several specimens, which he assigns to *lifuensis* Stebb., showing that the presence of one joint more or less either in the outer or the inner ramus is a variable feature, and one, moreover, entirely independent of sex. Read in conjunction with the original description this fact becomes even clearer.

In my MSS. (1917) I had identified the Cape and Natal specimens

as *lifuensis*, but Mr. Stebbing's 1918 determination of the Durban specimens as *dubius* caused me to revise my identification. Thus I find myself unable to separate *lifuensis* from *savignyi* in view of the similarity in the 1st peraeopods (gnathopods) and the variability in the rami of the uropods. The flagellum of the 1st antenna in ♂ varies from 6-8-jointed.

It may be noted that in 1918 Stebbing has by a slip written "finger" instead of "thumb," and that the thumb is represented in the figure as only unidentate instead of bidentate on the inner margin, as stated in the text.

Geogr. Distribution.—*L. savignyi* has a wide distribution on both sides of the North Atlantic as far south as Senegal and Madeira, and the Azores, and including the Mediterranean (see Richardson); *dubia* is recorded from the W. Indies and Brazil (see Richardson); and *lifuensis* is widely distributed in the Indo-Pacific, being recorded by Stebbing from the Loyalty Islands and Isle of Pines, Ceylon, and the Red Sea.

FAMILY GNATHIIDAE.

Gnathia cryptopais Brnrd.

1925. *Gnathia cryptopais*. Barnard, Ann. Mag. Nat. Hist., (9) 15, p. 417.

Male.—Head smooth, dorsally concave in front, anterior margin with a large median semicircular crenulate lobe. Antero-lateral angles, shortly but acutely produced. Eyes not very prominent.

Peraeon segments 2 and 3 subequal in length, a short constriction between segments 3 and 4; segments 4-6 subequal in length, with only shallow grooves separating them, lateral margins and postero-lateral angles of segment 6 rounded, no median longitudinal depressions.

Pleon shorter than peraeon segments 4-6 together.

Telson with lateral margins slightly concave, apex acute.

Lateral margins of peraeon and pleon segments with moderately numerous outstanding setae.

First antenna, 3rd joint of peduncle longest, flagellum 4-jointed.

Second antenna subequal to 1st, ultimate peduncular joint longest, flagellum 5-jointed.

Mandible narrow, apex acute, outer margin with a very indistinct tooth, inner margin biconcave, the basal concavity matching the median lobe of head when the mandible is closed.

Maxilliped, 2nd joint strongly produced on inner distal margin, exceeding the 1st palpal joint, 4th palpal joint not incurved.

First peraeopod broadly subtriangular, inner and outer margins both convex.

Second to sixth peraeopods very feebly tuberculate.

Pleopods with 2 hooked setae on peduncle, rami narrow and subequal.

Uropod, outer ramus narrower and shorter than inner, both with simple setae.

Length.—2 mm.

Colour.—In spirit, whitish, eyes reddish.

Locality.—Duminy Point (off Saldanha Bay), E. by N. $\frac{1}{2}$ N., distant 8 miles, 87 fathoms, 1♂, 1 juv. S.S. "Pieter Faure," 17/3/02. (S.A.M., No. A 6051.)

This species is very closely allied to *G. cerina* Stimps. judging by Miss Richardson's figures in the Monograph of N. American Isopods, 1905, p. 60. The present species, however, is perfectly smooth, not granulate as in fig. 43 copied from Harger, and there is no longitudinal groove on segment 5. The mandible also is distinctly biconcave, not as in Miss Richardson's figure concave only in the distal half of the inner margin. The Cape species, therefore, may claim for the present specific distinctness.

It is distinguished also from *G. richardi* Dollf., 1901, by its broader head and peraeon and by the presence of the acute antero-lateral angles of the head. The frontal lobe is more prominent and semi-circular. The mandibles, however, of the two species are very similar.

An interesting point about the larva is that it is completely enclosed, except the mouth-parts and front part of the head, in a covering of monaxonid sponge spicules, the pleon being doubled up under the peraeon in Brachyuran fashion. This coating seems to have been constructed by the animal, as it does not have the appearance of being a self-grown sponge. The specific name refers to this peculiarity.

Gnathia aureola Stebb.

1900. *Gnathia aureola*. Stebbing, in Willey's Zoo. Res., pt. 5, p. 627, pls. lxxvi, A and lxxiv, E (juv.).

1906. ,, ,, Nobili, Mem. R. Ac. Sci. Torino, ser. 2, vol. lvii, p. 419, pl. ii, fig. 7, pl. iii, fig. 7 (juv.).

A specimen of a larval *Gnathia* which was found in the gills of an *Actobatis narinari* Euphrasen from the coast of Natal, and which agrees with Stebbing's and Nobili's accounts, may be assigned to *aureola*, seeing that both these authors record it from the same species of fish.

Other specimens, not differing apparently from the first specimen, were found in the gills of *Dasybatus pastinaca*, also from the Natal coast.

As in Stebbing's specimens the body has become much darkened in the preservative without any indications of golden spots or rings.

Length.—6 mm.

Colour.—In spirit, the head, anterior part of peraeon, and the pleon light brown, swollen part of the peraeon dark blue-grey.

Locality.—Natal coast, from gills of *Aetobatis narinari* and *Dasybatus pastinaca*. (S.A.M., Nos. A 6287 and A 6288.)

Geogr. Distribution.—Loyalty Islands (Stebbing); Mangareva, Polynesia (Nobili). In gills of *Aetobatis narinari*.

The relation between this species and the earlier *Anceus rhinobatis* Kossmann, 1880, from the Red Sea, *A. torpedinis* Walter, 1885, from Ceylon, and *G. aldbrensis* Schoen, 1908, has yet to be studied. It is probable that all will eventually prove to be the same species, which will then be known as *G. rhinobatis* Kossm.

FAMILY ANTHURIDAE.

For revision of family see: 1925. Barnard, J. Linn. Soc. Lond. vol. xxxvi, p. 109.

Gen. HALIOPHASMA HASW.

1925. Barnard, J. Linn. Soc. Lond., vol. xxxvi, p. 131.

Haliophasma tricarinata Brnrd.

1925. Barnard, *loc. cit.*, p. 132, pl. iv, fig. 2.

Immature (? ♂).—Body narrow, smooth. Head very slightly longer than broad, with median point and rounded antero-lateral angles. Eyes well developed but not bulging.

Peraeon segments plano-convex dorsally, broadly rounded ventrally (except segment 1, which is strongly keeled), with a lateral groove on each but no keel, a section through middle of body being thus almost square with the angles slightly rounded off. A shallow oval pit in anterior half of segments 4–6. Segments 1–3 and 6 subequal, 4 and 5 a little longer, 7 considerably shorter.

Pleon segments 1–5 together subequal to 7th peraeon segment, the sutures indistinct, especially dorsally.

Telson elongate linguiform, apex rounded, sparsely setose, dorsal surface with 3 raised longitudinal ridges reaching apex but not the base, interstices between the ridges, and between the ridges and the lateral margins shallowly pitted, ventral surface with a median longitudinal rounded ridge from apex to near base.

First antenna, 1st joint largest, 2nd and 3rd smaller and subequal, flagellum of 1 distinct and 1 rudimentary terminal setiferous joint.

Second antenna, 2nd joint largest, grooved, 3rd-5th increasing slightly in length, flagellum shorter than 5th joint, consisting of 1 distinct and 3-4 rudimentary terminal setiferous joints.

Mandible, cutting plate with few and feeble denticulations, 1st and 3rd palpal joints subequal.

Maxilliped with small but distinct inner plate, 3rd joint with indistinct suture near base and distinct apical oblique suture, whole appendage therefore 5- or 4-jointed, according as the partial suture is considered to delimit a joint or not.

Peraeopod 1 stout, 3rd joint unusually long, apically lobed, 4th transverse, lobed on upper margin, 5th apically subacute, not projecting, 6th broadly oblong with rounded posterior margin, palm nearly transverse owing to its being expanded into a convex place, finely and regularly serrulate, finger stout, matching palm, inner margin smooth.

Peraeopods 2 and 3 arising from under a short lateral keel, 5th joint underriding the elongate-oblong 6th.

Peraeopods 4-7, 5th joint not underriding 6th. Peraeopod 7 slightly more slender than preceding ones.

Pleopod 1, outer ramus opercular but not indurated, outer surface shallowly and sparsely pitted, inner ramus half width of outer.

Pleopod 2, without trace of stylet on inner ramus.

Uropod, inner ramus not reaching telsonic apex, 1st joint deeply grooved for reception of outer ramus, 2nd joint as wide as 1st, longer than wide, apex rounded, outer and apical margins denticulate and fringed with simple setae, outer ramus ovate with strongly excavate outer distal margin, apex acute, outer margin denticulate and fringed with plumose setae.

Length.—15 mm.; *breadth*, 1 mm.

Colour.—In spirit, dull pinkish, eyes dark red-brown.

Locality.—Cape St. Blaize, N., distant 12 miles, 42 fathoms, 1 specimen, posterior portion only; Cape St. Blaize, N.E. by N. $\frac{1}{4}$ N., distant 11 miles, 40 fathoms, 1 immature (σ). S.S. "Pieter Faure," 22/10/00 and 24/10/00. (S.A.M.. Nos. A 5967-8.)

Haliophasma coronicauda Brnrd.

1925. Barnard, *loc. cit.*, p. 132.

Immature σ .—Body narrow, smooth. Head a little longer than broad, with median point and rounded antero-lateral angles. Eyes

well developed but not bulging. Peraeon segments plano-convex dorsally, keeled laterally and ventrally, decreasing slightly in length posteriorly to the 6th; 7th considerably shorter than 6th.

Pleon segments 1-5 together equal to or very slightly longer than 7th peraeon segment, sutures distinguishable but not deep.

Telson ovate with rounded apex bearing a few setae, dorsal surface with an oval raised central portion like the crown of a hat surrounded by a flat rim.

First antenna, 1st joint largest, 2nd and 3rd smaller and subequal, flagellum a little shorter than peduncle, 5-jointed.

Second antenna, 2nd joint largest, grooved, 3rd and 4th subequal, 5th rather longer, flagellum longer than 5th but shorter than 4th plus 5th, 5-jointed.

Mandible, 1st and 3rd palpal joints subequal.

Maxilliped resembling that of a ♀ specimen of *A. gracilis*, as figured by Sexton (1914, J. Mar. Biol. Assoc., vol. x, No. 2, p. 241, fig. 8), but with a distinct transverse suture across the widest portion of the 2nd (in the figure) joint, and another oblique suture from the apical group of setae to the outer margin. Counting the fused basal joint the appendage is therefore 5-jointed. Epipod oval.

Peraeopod 1 stout, 5th joint with blunt apex, 6th elongate-ovate, projecting backwards to posterior margin of 4th, palm gently convex, setose, finger plus unguis matching palm but a little longer, inner margin smooth.

Peraeopods 2 and 3 not stout, 5th joint underriding the elongate-oblong 6th.

Peraeopods 4-7, 5th joint not underriding 6th. Peraeopod 7 rather more slender than preceding ones.

Pleopod 1, outer ramus opercular but not indurated, outer (ventral) surface with a longitudinal groove from base to near apex, nearer inner than outer margin, rest of surface smooth, inner ramus half width of outer.

Pleopod 2 without any trace of a stylet on inner ramus.

Uropod, inner ramus reaching telsonic apex, 1st joint obliquely grooved for reception of inner margin of outer ramus, 2nd joint as wide as 1st and a little longer than wide, subtrigonal with rounded apex, outer ramus not meeting its fellow in middle line, narrow-ovate with concave outer distal margin and subacute apex, margins of both rami fringed with setae.

Length.—16 mm.; *breadth*, 1.5 mm.

Colour.—In spirit, dull pinkish, eyes dark brown.

Locality.—Duminy Point (off Saldanha Bay), E. by N. $\frac{1}{2}$ N., distant 8 miles, 87 fathoms, 2 immature ($\sigma\sigma$). S.S. "Pieter Faure," 17/3/02. (S.A.M., No. A 5962.)

MALACANTHURA Brnrd.

1925. Barnard, J. Linn., Soc. Lond., vol. xxxvi, p. 133.

Malacanthura linguicauda (Brnrd.).

1920. Barnard, Ann. S. Afr. Mus., vol. xvii, 5, p. 338.

An additional specimen has come to hand in which the 1st antenna is not elongate, 1st joint largest, 3rd longer than 2nd, flagellum equal to 3rd joint, consisting of one joint with a minute apical joint bearing a tuft of long setae.

The finger (7th joint) of 1st peraeopod bears 4 rounded denticles, of which the distal one is largest. Pleopod 2 without stylet.

Length.—10.5 mm.

Locality.—Lion's Head (Cape Peninsula), S.E., distant 22 miles, 95 fathoms, 1 immature (? σ). S.S. "Pieter Faure," 6/3/00. (S.A.M., No. A 5966.)

Gen. EXANTHURA Brnrd.

Exanthura filiformis (Lucas).

1920. Barnard, Ann. S. Afr. Mus., xvii, 5, p. 340.

1925. *Id.*, J. Linn. Soc. Lond., vol. xxxvi, p. 131, pl. iv, fig. 22.

Further specimens from the following localities have come to hand since the above-quoted description was published.

Lion's Head (Cape Peninsula), S.E., distant 22 miles, 95 fathoms, 1 σ ; Cape Infanta, N.E. by N. $\frac{1}{2}$ N., distant 13 miles, 43 fathoms, 1 σ . S.S. "Pieter Faure," 6/3/00 and 1/7/00. (S.A.M., No. A 5964-5.)

The second specimen resembles the σ described in 1920 in every respect, including length (23 mm.). But the first specimen is interesting as being only 16 mm. long, and yet showing the greatly elongate and swollen 1st antennae characteristic of breeding males.

The 1st antenna reaches back to the middle of 2nd segment; it is cylindrical and of equal width throughout until near the apex, where it tapers gently; its width equal to half that of the head. Three basal joints can be distinguished, nearly as long as wide, followed by about 23 joints twice as wide as long; the last 2 joints are small and conical, the apical one bearing a small tuft of setae. With the exception of this apical tuft the whole antenna is devoid of setae.

The 2nd antenna shows the following differences from that of the specimen already described. The 2nd joint is more flattened dorso-ventrally so as to form a bed for the base of the swollen 1st antenna ; in other words, the upper ridge, which is well developed in the non-breeding male, is here obsolete. Further, there is a subacute tooth pointing forwards developed on the outer margin of the 1st or 2nd joint ; as the suture is indistinct a little uncertainty exists as to which joint really bears the tooth. The flagellum is scarcely more than half the length of 5th peduncular joint, instead of being only a little shorter, and consists of 2 joints, the terminal one small and conical with a small tuft of setules.

No trace of a stylet on inner ramus of 2nd pleopod.

In spite of the considerable changes, in particular the disappearance of the recurved process on 1st joint of 1st antenna, which thus seem to take place in the breeding male, it is quite clear that we are dealing with the same species ; for in every other morphological feature there is complete agreement. The absence of whorls of long setae is paralleled in Norman and Stebbing's figure of *Anthura gracilis* (1886, Tr. Zool. Soc., vol. xii. p. 123, pl. xxv, III, D♂). On the following page (124) these authors remark that the specimen described and figured was probably immature, and that "after the exuviation which should bring it to its perfect state, the upper antennae would have a plumose flagellum." The adult male with plumose antennae was described and figured by Sexton (1914, J. Mar. Biol. Assoc., vol. x, 2, p. 237).

FAMILY AEGIDAE.

Gen. AEGA Leach.

Aega antillensis Sch. and M.

1879. *Aega antillensis*. Schiödte and Meinert, Naturh Tidsskr., ser. 3, vol. xii, p. 361, pl. viii, figs. 10-13.
1905. ,, ,, Richardson, Bull. U.S. Nat. Mus., No. 54, p. 170, figs. 149, 150.
1910. ,, ,, Thienemann, Abh. Ak. Wiss., II, Suppl. Bd. 3 Abh., p. 26, pl. i, figs 1, 2.

This specimen appears to agree exactly with Thienemann's specimens from Japan, which he identified as *antillensis*. I am inclined to think that a comparison with Schiödte and Meinert's type would show that a new name should be applied to the Japanese and S. African specimens.

The shape of the frontal lamina especially seems distinctive. In Schiödte and Meinert's figure it is rounded posteriorly, with a straight or slightly concave anterior margin. In the present specimen, as also in the Japanese ones, so far as can be judged from Thienemann's photographs, these features are exactly reversed.

In other respects there seem no differences worth recording.

Length.—40 mm.

Colour.—Dirty greenish-white.

Locality.—Off Umvoti River, Natal, 130 fathoms. S.S. "Meikle," per H. W. Bell-Marley, 1923. (S.A.M., No. A 6597.)

Distribution.—West Indies, 163–231 fathoms (Schiödte and Meinert, Richardson); Japan, 50 fathoms (Thienemann).

FAMILY CYMOTHOIDAE.

Gen. NEROCILA Leach.

References after 1914 are as follows:—

1915. Nierstrasz, Zool. Medel., i, pt. 1, p. 72.

1918. *Id.*, *ibid.*, iv, pt. 2, p. 108.

Nerocila armata Dana.

1853. *Nerocila armata*. Dana, U.S. Expl. Exp., vol. xiii, p. 761, pl. 1, figs. 10, *a-d*.

1879. „ *rhabdota*. Koelbel, S.B. Ak. Wiss. Wien., Bd. 78, Abt. 1.

1881. „ „ Schiödte and Meinert, Naturh. Tidsskr., ser. 3, vol. xiii, p. 39, pl. ii, figs. 5, 6.

1881. „ *cephalotes*. *Id.*, *ibid.*, p. 60, pl. iv, figs. 16, 17.

1902. „ „ Stebbing, S.A. Crustacea, pt. 2, p. 55.

1914. „ *rhabdota*. Barnard, Ann. S. Afr. Mus., vol. x, pt. 11, p. 371.

1921. „ *armatus*. Stebbing, Ann. Durb. Mus., vol. iii, pt. 1, p. 23.

1924. „ *cephalotes* and *rhabdota*. Monod, Parasit. Mauritan. Isop., pp. 75, 79, figs.

In the 1914 paper I have recorded two examples of *rhabdota* from S. Africa, one of which had the inner ramus of the uropods shaped as in *cephalotes*.

I have now come to the conclusion, based on abundant material

collected by myself in 1922 during a trawling expedition on the Agulhas Bank, that these two species cannot really be separated specifically.

A comparison of the descriptions of the two forms given by Schiödte and Meinert shows that, with the exception of the lateral angles of the pereon segments and the epimera, there is scarcely any difference between them; they are, in fact, almost word for word the same.

The *rhabdota* form has the postero-lateral angles of the posterior pereon segments considerably produced, that of the 7th segment extending to the lateral angles of the 4th or 5th pleon segment, to which level the inferior angles of pleon segments 1 and 2 also extend. The 3 anterior epimera are posteriorly acute.

The *cephalotes* form has the postero-lateral angles of the posterior pereon segments much shorter, that of the 7th segment not reaching as far as inferior angles of pleon segments 1 and 2, which scarcely reach the angles of the 4th pleon segment. The 3 anterior epimera are posteriorly obtuse.

Between these two extreme forms I have a series exhibiting a complete gradation, in view of which it seems impossible to maintain both specific names. Monod, however, is of opinion that they can and should be maintained as distinct species.

The typical *cephalotes* form is more abundant at the Cape than the *rhabdota* form, as Monod also found in N. Africa.

The shape of the inner ramus of the uropod varies considerably. The typical shape is described by Schiödte and Meinert. The most aberrant form I have seen is falcate, tapering from the rather swollen base to an acute apex, similar to that figured by the joint authors for *japonica* (*loc. cit.*, pl. ii, fig. 1). The tooth on the inner margin is usually present, but, as in the last-mentioned variation, may be entirely absent.

Stebbing has recently identified *cephalotes* with Dana's *armata*.

In life the colour is uniform cream, the eyes dark but very indistinct. I have seen no specimens exceeding Schiödte and Meinert's measurement of 36.5 mm.

The animals are found clinging to the skin and especially the fins of various kinds of fishes: Silver-fish (*Dentex*), Panga (*Pagrus*), White Stumpnose (*Chrysophrys*), and Sole (*Synaptura*). There is one specimen in the collection from Algoa Bay, received from a correspondent who stated on the accompanying label that it was "from mouth of *Trachynotus*." So far as my own experience goes it is exclusively an ectoparasitic form.

Nerocila serra Sch. and M.

1881. *Nerocila serra*. Schiödte and Meinert, Naturh. Tidsskr., ser. 3, vol. xiii, p. 17, pl. i, figs. 12-14.

1915. „ „ Nierstrasz, Zool. Medel., i, 1, p. 74.

One typical specimen agreeing with the original description.

Length.—20 mm.

Colour.—Pale horn-colour, with a median and one lateral orange longitudinal stripe, the lateral stripe continued on to the outer ramus of uropod, eyes inconspicuous.

Locality.—Delagoa Bay (H. W. Bell-Marley, 1923), 1 ovig. ♀ on tail of a *Sargus* sp. (S.A.M., No. A 6600.)

Geogr. Distribution.—Bankes Straits; Java Sea.

Nerocila phaeopleura Blkr.

1857. *Nerocila phaeopleura*. Bleeker, Crust. Ind. Archip., p. 25, pl. i, fig. 3.

1881. „ „ Schiödte and Meinert, *loc. cit.*, p. 13, pl. i, figs. 6, 7.

1915. „ „ Nierstrasz, *loc. cit.*, p. 75, pl. iii, figs. 1, 2.

1918. „ „ *Id.*, *loc. cit.*, p. 113, pl. ix, figs. 6, 7.

A typical example, a young (?), 21 mm. long, from the tail of *Chirocentrus dorab*, Natal coast. (H. W. Bell-Marley. S.A.M., No. A 6310.)

Geogr. Distribution.—East Indies.

Gen. ANILO CRA Leach.

Anilocra leptosoma Blkr.

1875. *Anilocra leptosoma*. Bleeker, Verh. Nat. Ver. Nederl. Ind., v, 2, No. 5, p. 30, pl. i, figs. 6, *a, b*.

1879. „ *alloceraea*. Koelbel, Neu. Cym., p. 7, pl. ii, figs. 1, *a-e*.

1881. „ *leptosoma*. Schiödte and Meinert, Naturh. Tidsskr., ser. 3, vol. xiii, p. 108, pl. viii, figs. 2, 3.

1915. „ „ Nierstrasz, Zool. Medel., i, 1, p. 87.

Typical specimens agreeing with the descriptions.

Length.—♀ 34 mm.

Colour.—Grey, speckled at the sides and on telson, eyes black.

Locality.—Delagoa Bay (H. W. Bell-Marley, 1923), 2 ♂♂, 2 ♀♀ (1 ovig.). (S.A.M., No. A 6599.)

Geogr. Distribution.—Sumatra, Java, Philippine Islands.

Gen. CTEATESSA Sch. and M.

1883. *Cteatessa*. Schiödte and Meinert, Naturh. Tidsskr., ser. 3, vol. xiii, p. 296.

Cteatessa retusa Sch. and M.

1883. *Cteatessa retusa*. Schiödte and Meinert, *loc. cit.*, p. 297, pl. ii, figs. 11–13.

1910. „ „ Stebbing, Gen. Cat. S.A. Crust., p. 424.

A fine ovigerous ♀, together with a ♂, sent by Mr. H. W. Bell-Marley, who found it in the mouth of a *Hemirhamphus far* in Durban Bay. As this species does not seem to have been met with since Schiödte and Meinert described it, and as the ♂ and young still remain unknown, a few notes may be useful.

The original description applies well to the present ♀. The head is a little more sharply pointed in front than in Schiödte and Meinert's figure.

Male.—Head similar to that of the ♀. Eyes distinct and moderately large. 1st peraeon segment without the lateral keel of the ♀. Posterior side-plates not so deep as in ♀. Telson with only a slight distal emargination. Two stout penial processes on 7th peraeon segment. Second pleopod apparently without stylet. Pitting on dorsal surface not visible.

Young.—Specimens 4 mm. in length have the ungues of the anterior 3 pairs of peraeopods denticulate.

Length.—♂ 12 mm., ♀ 33 mm.; *breadth*, ♂ 3.5 mm., ♀ 12 mm.

FAMILY IDOTEIDAE.

Gen. CLEANTIS Dana.

1826. *Zenobia*. Risso, Hist. Nat. Eur. Merid., vol. v, p. 110.

1849. *Cleantis*. Dana, Amer. J. Sci., ser. 2, vol. viii, p. 427.

1853 „ „ *Id.*, U.S. Explor. Exp., pp. 697, 707.

1881. „ „ Miers, J. Linn. Soc. Lond., vol. xvi, p. 76 (part).

1893. „ „ Stebbing, Hist. Crust., p. 375.

1895. *Zenobiana*. *Id.*, Ann. Mag. Nat. Hist., ser. 6, vol. xv, p. 24.

1904. „ „ Norman, *ibid.*, ser. 7, vol. xiv, p. 443.

1905. *Cleantis*. Richardson, Bull. U.S. Nat. Mus., No. 54, p. 404.
 1911. ,, Tattersall, Nord. Plankton. Isopod., p. 231.
 1912. ,, Richardson, Proc. U.S. Nat. Mus., vol. xiii,
 p. 27.
 1913. ,, Issel, Ann. Mus. Zool. Napoli, p. 1.
 1917. *Zenobiana*. Collinge., Tr. Roy. Soc. Edin., vol. li, pt. 3,
 p. 749.
 1921. *Cleantis*. Tattersall, Mem. Asiat. Soc. Beng., vol. vi, p. 425
 (discussion of synonymy of genus).

Cleantis natalensis n. sp.

Very close to the West Indian *C. planicauda* Bened.

The peduncle of 2nd antenna is closely similar to Miss Richardson's description of that of *C. japonica* 1912, but Benedict does not fully describe this appendage, and consequently a comparison is not feasible.

Second and third joints of peduncle of 2nd antenna produced on inner ventral side, the projection of the 2nd joint, *when viewed from below, apically bifid*, that on 3rd joint apically subacute; both joints as well as the 4th joint with the inner ventral margin keeled. Flagellum of a single joint.

The 3 joints of the peduncle of the 1st antenna triquetral in section. Maxilliped with 5-jointed palp.

Fourth peraeopod without anguis.

Uropod with plumose seta at outer apical angle of peduncle representing outer ramus.

Colour.—"Dark brown" in life; the spirit specimens show 6 dorsal longitudinal dark lines as in *planicauda* and *japonica* (the latter is said to have 5 lines, the mid-dorsal one being apparently counted as one instead of two); the epimera also are darker than the rest of the body.

Length.—11.5 mm.

Locality.—Durban Bay, "in sea-weed" (H. W. Bell-Marley coll., Oct. 1918), 2 immature apparently ♀♀. (S.A.M., No. A 6308.)

FAMILY ASTACILLIDAE.

Gen. ANTARCTURUS zur Strassen.

See Stebbing, S.A. Crust., pt. 4, p. 52, 1908.

Including the species described below, two species of this genus

have now been recorded from South Africa. The first species was *A. kladophoros*, Stebb., *loc. cit.*, p. 53, pl. xxxii.

This species was founded on a female only. In 1914 I described what I considered to be the male (Ann. S.A. Mus., vol. x, pt. 7, p. 212, pl. xviii, B), the reasons for this correlation being the general conformity in size, the number of the cephalic spines, the presence of the 2 hooked spines on the posterior margin of 4th segment, and the similarity in the armature of the peduncles of 1st pleopods.

The most striking difference in the sculpture, *i.e.* the greater number and complexity of the spines on the body, 2nd antennae and legs, may well be merely sexual and not specific. The following species exhibits in some ♀ specimens much more *pointed* tubercles than the males.

There remains the fact that in the supposed male of *kladophoros* the 4th segment is elongated, though not exceedingly. This feature is decidedly unusual, both in this genus and in *Arcturus*, although as a large number of the species are known only from females it cannot yet be decided whether it might be utilised as a generic character. It is thought advisable, however, to remark on this feature here, seeing that the two South African species differ so conspicuously in this respect.

Another feature which badly needs investigating in the species already described is the shape of the 1st pleopod in ♂, which will probably be found to be of value in specific differentiation. The male penial process should also be examined.*

Antarcturus similis n. sp.

Body granular, the granules often pointed but not subspiniiform.

Head in ♂ with 2 large submedian blunt tubercles behind the level of the hind margin of eyes, in ♀ with 2 smaller tubercles in the same position followed by 2 more of nearly equal size. Occasionally 2 smaller tubercles on front margin. Eyes large, suboval.

Peraeon segments, each with a pair of submedian granules larger than the rest, and thus forming 2 longitudinal ridges down the body, more prominent in ♀ than ♂, those on 4th segment being the most prominent in the ♂; in ♀ also a lateral ridge is similarly indicated but not distinctly, except on segments 4 (5) to 7.

* Since this was written, Tattersall has drawn attention to the specialisation of the 1st pleopods as accessory copulatory organs (1921, *Terra Nova Reports Zool.*, III, 8, p. 193).

Segment 1 not downwardly produced so as to hide mouth-parts. In ♂ the segments decrease in breadth slightly towards the posterior end; in ♀ segments 2 and 3 are angularly produced at the sides, being considerably wider than 1st, the succeeding segments decreasing in width. Fourth segment not longer than 3rd in either sex. Epimera very small and shallow.

Pleon of 3 segments in advance of the telson, each with the 2 submedian larger granules forming ridges in continuation of those on the peraeon, more distinct in ♀, in which also the lateral ridges occur.

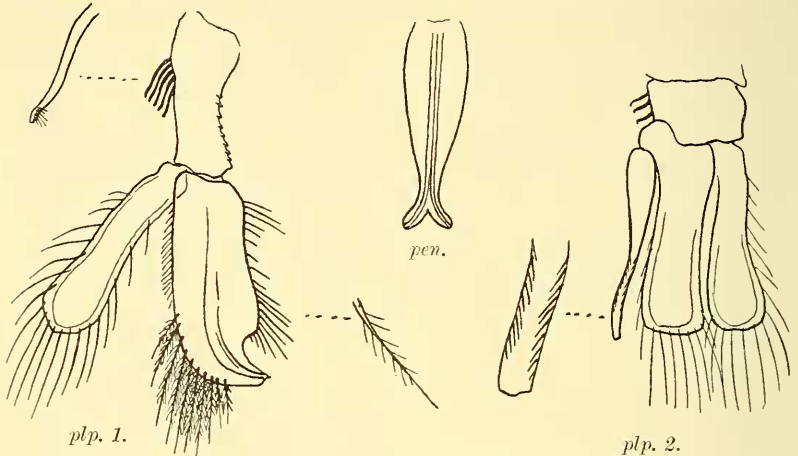


FIG. 1.—*Antarturus similis* n. sp. Penis, first and second pleopods of male: the setae on the inner ramus of the first pleopod are all plumose, though shown as simple in the above figure.

Telson not greatly longer than broad, with a tooth on lateral margin near base and another less well marked (especially in ♀) distally, apex subacute, not strongly produced, in ♂ a large median blunt or sometimes pointed tubercle at base, and 3 pairs of granules larger than the others, forming 2 ridges distally; both these features usually absent in ♀, in which surface is merely finely granular, but the median tubercle is sometimes well marked in young ♀♀; it may even be absent in the ♂ (see specimen No. A 5953).

Thus the development of the granules varies, as may also their shape; in some young ♀♀ all the granules are sharply pointed, in other specimens they are all blunt, so that at first sight one would suspect there to be two species.

No ventral knobs or processes on peraeon segments.

First antenna reaching to middle of 3rd joint of 2nd antenna, 1st

joint stout, 2nd and 3rd much more slender, 3rd shorter than 2nd, flagellum equal to 2nd plus 3rd, apex blunt, lower margin sparsely setose.

Second antenna reaching back to 5th segment, 2nd and 3rd joints obscurely (especially in ♀) granular, 5th slightly shorter than 4th, flagellum shorter than 5th, composed of 2 joints plus a terminal unguis. Both peduncle and flagellum sparsely setose, the setae short.

First peraeopod stout, 3rd joint shorter than 2nd, 4th and 5th broader than long, inner apex of 5th ending in a short acute point, 6th ovate, scarcely twice as long as broad, inner margins of 5th and 6th with dense (especially in ♂) fringe of doubly pectinate setae, 7th plus unguis nearly equal to 6th.

Second to fourth peraeopods slender, increasing in length, fringed with long setae.

Fifth to seventh peraeopods stout, with strong 7th joints and unguis.

Second joint in all the peraeopods obscurely granulate.

Four pairs of marsupial plates.

A single male appendage on 1st pleon segment, tapering distally and then dividing into two diverging arms, which are apically blunt. The vasa deferentia run contiguous along the whole length and then separate to open at the ends of the arms.

First pleopod in ♂ modified, peduncle elongate, strong and indurated, outer margin with ca. 9 denticles, inner margin with 5 hooked setae, outer ramus indurated, with a groove on its surface running to the apex; inner margin finely setulose, distal portion with long plumose setae, the apex acute and curved outwards, outer margin bisinuate, the distal excavation the deeper, margin with stout spines, inner ramus smaller, thin, margins with plumose setae; in ♀ not modified or indurated, peduncle with numerous denticles on outer and 4 hooked setae on inner margin, rami subequal, thin, margins with plumose setae.

Second pleopod in ♂, peduncle short, rami subequal, stylet, arising from base of inner ramus and equalling it in length, tapering, distal portion like one-half of a tube divided longitudinally, with a series of fine serrations along each margin.

Uropod apically pointed, setose, no internal ramus visible, outer surface granular with, in ♂, a median longitudinal keel and the inner and outer margins thickened, in ♀ smooth or only very slightly granular.

Length.—♂ 9 mm., ♀ 6 mm.; *breadth*, ♂ 1.75 mm., ♀ (across 2nd peraeon segment) 2 mm.

Colour.—In spirit, yellowish, eyes brown.

Locality.—Cape St. Blaize, N., distant 12 miles, 42 fathoms, 2 ♂♂, 2 ♀♀, 4 juv. ; Vasco da Gama (Cape Peninsula), N. 40° E., distant 13 miles, 120 fathoms, 1 ♂ ; Cape Infanta, N.E. by N. $\frac{1}{2}$ N., distant 13 miles, 43 fathoms, 1 ♂ ; Cape St. Blaize, N.E. by N. $\frac{1}{4}$ N., distant 11 miles, 40 fathoms, 2 juv. ♀♀ ; Duminy Point (off Saldanha Bay), E. by N. $\frac{1}{2}$ N., distant 8 miles, 87 fathoms, 1 ♂. S.S. "Pieter Faure," 22/10/00, 4/5/00, 1/7/00, 24/10/00, and 17/3/02. (S.A.M., Nos. A 5951-5.)

This species is exceedingly close to *A. simplicissimus* Whitelegge, 1904. The only appreciable difference in the body sculpturing is the absence in Whitelegge's species of the median tubercle at the base of the telson. But this may be absent also in the present species. The other slight differences might well be ascribed to variation, individual or local.

But added to the above difference is the very distinct difference in the 2nd antennae, and the different proportion of length to breadth in the 6th joint of 1st pereiopod. In *simplicissimus* the antennae are remarkably short for a member of this genus, or, indeed, family, and had Whitelegge not had 3 specimens one would have suspected a case of regeneration after an injury. The 6th joint of 1st pereiopod in the Australian species is 3 times as long as broad, whereas in the Cape species it is scarcely twice as long as broad.

There is a general superficial resemblance in the body sculpturing to *A. stebbingi* (Beddard), 1886.

Gen. ARCTURINA Koehler.

1911. *Arcturina*. Koehler, Bull. Inst. oc. Monaco, No. 214, p. 53.

This genus has hitherto contained only the type species, *A. rhomboidalis* Koehler, 1911, from the neighbourhood of Cape Verde. The discovery of a second species necessitates some remarks on the diagnostic characters of the genus.

The first point to be noticed concerns the anterior pereiopods. Koehler states that there is a "difference of structure" between the 2nd and 3rd pereiopods on the one hand, and the 4th pereiopod on the other. But his figures and description show that although there is a marked difference in *size* between the said pereiopods, the real difference of *structure* occurs between the *first* and the succeeding pereiopods. This is confirmed in the present species.

The 1st pereiopod is a normal 7-jointed (counting the 1st free joint as the 2nd) pereiopod with terminal unguis. In the 2nd-4th pereiopods

pods, however, the 7th joint is degenerate and the unguis has entirely disappeared. It is to be noted that Koehler has described the 2nd joint or basipodite in the 2nd-4th peraeopods as the ischiopodite, having apparently overlooked the real ischiopodite or 3rd joint. This is not surprising if in *rhomboidalis*, as in the present species, the 3rd and 4th joints are obscurely separated, although from its length the first free joint is obviously the 2nd joint.

The degeneration of the unguis, and also of the 1st peraeopod, may be observed in *Arcturus*, as pointed out by zur Strassen (*Zool. Anz.*, vol. xxv, 1902, pp. 684, 685, fig. 1). This author remarks that the degenerate 1st peraeopod forms structurally, and probably also functionally, a transition to the maxilliped. In the present species, although this appendage is structurally a typical "leg," yet there is no doubt that functionally it serves as a maxilliped, because it is enclosed within what may be called a buccal chamber.

This buccal chamber seems to be quite unique in the family. It is not referred to by Koehler, unless he had it in mind when he wrote that the 4 anterior pairs of peraeopods form a compact mass "qui se termine en avant par un bord vertical au niveau de l'extrémité postérieure de l'œil" (*loc. cit.*, p. 60). From this statement I strongly suspect that *rhomboidalis* agrees with *hexagonalis* in possessing this same feature. But this feature deserves a more explicit description.

The buccal chamber is an extreme development of the downward projections of the 1st peraeon segment and the "cheeks" of the head which are seen in *Arcturus*, and is formed as follows:—The ventral margins of the head and 1st peraeon segment project ventrally as a raised rim, which is interrupted anteriorly in the middle line. This gap is filled, however, and the rim thus rendered continuous, by the epistomal portion of the head; it appears to be somewhat mobile, and rises to the same height as the rest of the rim. To it is movably articulated the upper lip, which projects horizontally into the chamber, *i.e.* at right angles to the epistome.

The chamber is closed ventrally by the closely imbricated 2nd-4th pairs of peraeopods with their fringes of long setae. Laterally the upper margins of the 2nd peraeopods are accurately apposed to the margins of the rim.

Within the chamber lie wholly concealed the 1st pair of peraeopods and the mouth-parts. The function of the 1st peraeopods as maxillipeds is therefore fairly certain, though the full biological significance of the whole structure may not become apparent until the opportunity occurs of watching living specimens in an aquarium.

It is to be regretted that no males of the South African species were collected, though, of course, the structure may be expected to be the same in both sexes.

The genus may be diagnosed as follows:—Body cylindrical, strongly bent between 4th and 5th segments, mouth-parts and 1st peraeopods concealed in a buccal chamber, formed laterally and anteriorly by the rim-like ventral margins of the head and 1st peraeon segment, and closed ventrally by the closely imbricated 2nd–4th peraeopods; 1st peraeopod with well-developed 7th joint and unguis, 2nd–4th peraeopods with rudimentary 7th joint bent inwards against 6th joint and no unguis, 4th segment elongate, more so in ♂ than in ♀, antero-laterally expanded in ♀, side-plates small or obscurely separated, 3 pairs of marsupial plates, that on 4th segment with inset-piece posteriorly, pleon with 3 segments in advance of telson, 3rd segment and telson somewhat indistinctly separated, pleopod 1 in ♂ with modified outer ramus.

Arcturina hexagonalis n. sp.

♀.—Body with thickly furry ridges but no granules, tubercles, or spines, strongly bent between 4th and 5th segments.

Head with short straight front margin with minute median point, antero-lateral angles reaching to base of 2nd joints of 2nd antennae, apically blunt, 2 submedian ridges from the level of eyes to posterior margin. Eyes prominent, subrotund.

First peraeon segment fused with head dorsally and dorso-laterally, with only a groove to mark the limits of the two. Ventrally the two are separated by an incision, though the margins are contiguous.

The ventral margins of the head and 1st peraeon segment form a raised rim surrounding the mouth-parts and concealing them when viewed from the side. This rim is discontinuous in front, but the gap is filled by the epistomal portion which bears the upper lip.

Second and third peraeon segments very short, increasing in width, like the 1st segment without dorsal ridges, the lateral portions nodular but without distinct epimeral sutures.

Fourth segment nearly half as long again as head plus segments 1–3, wider in front than 3rd segment, but width not equalling length, margins straight, converging to posterior end, which is only half the anterior width, antero-lateral angles nodular with shallow epimeral grooves. The thickened ridge-like margins and 2 submedian longitudinal parallel ridges densely furry.

Posterior margin of 4th segment indented, but the postero-lateral

angles not so prominently overlapping the 5th segment as represented in *A. rhomboidalis*. Segments 5-7 short and diminishing slightly in width posteriorly, each with a medio-dorsal furry ridge.

Pleon of 3 segments in front of telson, the 3rd indistinctly separated, each with 2 submedian furry ridges. Telson with basal tooth on lateral margin, and another slight one before the distal narrowing, apex rather more strongly and acutely produced than in *rhomboidalis*, with the margins slightly concave.

First antenna reaching to middle of 3rd joint of 2nd antenna, 1st

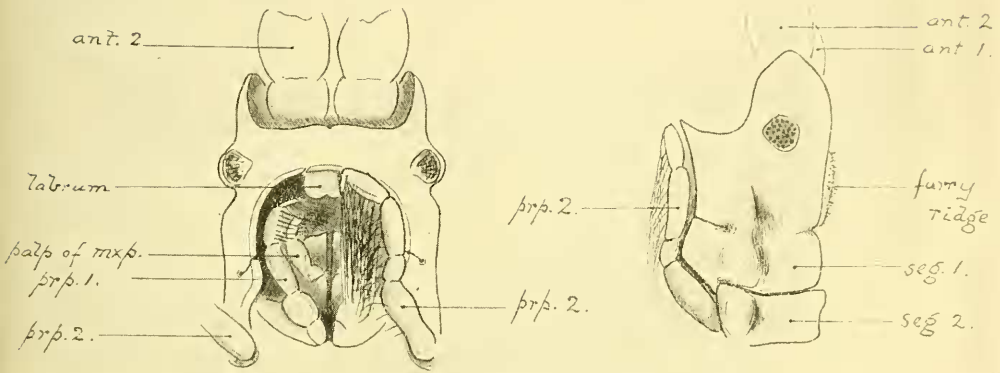


FIG. 2.—*Arcturina hexagonalis* n. sp. Ventral and lateral views of head and anterior pereopod segments. Enlarged.

joint not very stout, 2nd and 3rd more slender, 3rd shorter than 2nd, flagellum slender, as long as 2nd joint, with 2 long filiform and 3 sensory filamentous setae on apex.

Second antenna nearly as long as head plus segments 1-4, peduncle stout especially when viewed laterally, 4th joint longest, 5th longer than 3rd but more slender, upper and lower margins densely furry with a few longer setae, flagellum considerably more slender than 5th, also shorter, composed of 3 joints, the last with slender unguiform apex, the lower margins with regularly arranged minute bunches of setules.

Upper lip slightly asymmetrically bilobed.

Mandible with tridentate cutting edge, accessory cutting plate, spine-row, and strongly developed molar.

First maxilla with 3 plumose setae on inner plate; second maxilla with middle and outer plates together only half width of inner plate.

Maxilliped, inner plate almost as long as and quite as broad as 2nd joint, with 1 strong coupling-hook, distal margin truncate and slightly concave, palp with its 3rd joint longest, terminal joint well developed, setose, epipod large, subtrigonal, the basal granular portion not much larger than 2nd joint, but the rest formed of a perfectly transparent wide margin bearing a few setules on its edge, vibratory plate not greatly larger than 2nd joint, transversely oval, with a few setae on its transparent margin.

First peraeopod, 2nd joint longest, 4th a little longer than 3rd, its outer margin slightly expanded, 5th ovate longer than 6th, 7th half length of 6th, with slender unguis longer than itself, inner margins of 5th and 6th and outer distal margin of 6th with long spine-setae.

Second to fourth peraeopods increasing slightly in length, 2nd joint subequal to 5th, 3rd and 4th very short and indistinctly separated, 6th shorter than 5th, 7th bent inwards against and shorter than 6th, without unguis, inner margins of 5th, 6th, and especially 7th with very long setae.

The anterior four pairs of peraeopods form an imbricated series, lying closely packed one over the other. The first pair lie *within* the raised rim which forms a kind of buccal chamber; the 2nd pair lies with the upper (outer) margin contiguous with the margin of the rim, the sinuous curve of which corresponds with the curve of the jointed peraeopod. The 3rd and 4th pairs complete the closing in of the chamber so that the mouth-parts and 1st peraeopods are completely hidden from view.

Three pairs of marsupial plates. Careful search failed to reveal a pair on the 1st peraeopods. The plate on the 4th peraeopod is large, subrectangular, with small oval inset-piece, which does not, however, form the posterior apex of the plate as in *rhomboidalis*, lower margin densely setulose, a longitudinal furry ridge running along the middle of the plate.

A transverse section through the 4th segment with the marsupial plates is thus hexagonal in outline, whence the specific name, the 2 dorsal ridges, the lateral ones, and the two on the marsupial plates forming the angles.

Peraeopods 5-7 strong, a small accessory tooth at base of unguis, lower margins of all the joints densely furry.

Pleopod 1 very slender, peduncle with 3 hooked setae.

Uropod narrow, tapering to a fine point, concealed ramus with 1 terminal seta, outer distal margin setose.

Length.—7 mm.; *breadth*, 1·8 mm.

Colour.—In spirit, yellowish.

Locality.—Cape St. Blaize, N., distant 12 miles, 42 fathoms, 4 ovigerous ♀♀. S.S. "Pieter Faure," 22/10/00. (S.A.M., No. A 5957.)

Gen. ARCTURELLA Sars.

Arcturella lobulata n. sp.

Female.—Body glabrous, shagreened, strongly depressed. Head wider than long, antero-lateral processes rounded, with a small point laterally. Eyes large, oval. Peraeon segment 1 with antero-lateral angles acutely pointed; segments 2 and 3 increasing in width, the antero-lateral angles bevelled off obliquely; segment 4 widest, twice as wide (anteriorly) as long, width across anterior margin almost equal to length of head and segments 1-4 together, each antero-lateral angle with two lobe-like processes, the anterior one being more ventral than the posterior one, middle of lateral margin with a shorter lobe; seg-

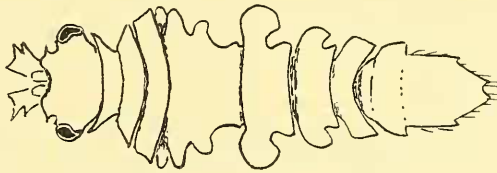


FIG. 3.—*Arcturella lobulata* n. sp.

ment 5 much wider than posterior margin of 4, lobate, with an incision on postero-lateral margin; segment 6 similar but smaller; segment 7 with lateral margins quadrate.

Pleon segments 1-3 increasing in width, 3 projecting laterally, dorsal sutures very indistinct. Telson tapering to a subacute notched apex, with a tooth on each lateral margin.

Antenna 2, 2nd joint with 2 acute teeth on outer margin, 5th joint smooth, flagellum of a single joint, its lower margin with 2 rows of fine setules.

Peraeopods 2-4 moderate, 5th joint of peraeopod 4 reaching a little beyond the eyes.

Peraeopod 5, 2nd joint equal in length to length of peraeon segment 4, but shorter than the rest of the joints together.

Three pairs of marsupial plates.

Length.—10·5 mm.

Colour.—White with fine stellate pink specks over whole body and appendages, eyes dark red.

Locality.—Natal coast, 40 fathoms (H. W. Bell-Marley, 1925), 1 ovigerous ♀. (S.A.M., No. A 6622.)

This pretty species is easily distinguished from all the other species of this genus by its lobulate lateral margins.

Arcturella corniger (Stebb.), var. *subglaber* Brnrd.

1914. Barnard, Ann. S. Afr. Mus., vol. x, pt. 7, p. 211; and 1920, *ibid.*, vol. xvii, pt. 5, p. 392.

A very fine ovigerous ♀ of this form allows me to add some further details to the original description.

The development of the tubercles is much stronger than in the type and corresponds with the greatest development of the tubercles in the typical form of *corniger* (*loc. cit.*, p. 391). There are 4 acute tubercles on the head, one median one on each of the peraeon segments 1-3, of which that on the 1st segment is the largest. The 4th segment has an anterior boss bearing 3 large and 2 small rounded tubercles; 2 acute tubercles on the posterior margin and immediately in front of them a large median obtuse knob. Segments 5-7 each with a single median tubercle.

Length.—17 mm.

Locality.—Mossel Bay, 20 fathoms. (S.A.M., No. A 6624.)

As this locality is situated on the South coast in the warm Agulhas current, my remarks at the end of the original description are beside the point.

I still do not feel justified in raising this form to full specific rank.

FAMILY JAERIDAE.

Gen. JAERA Leach.

See Barnard, Ann. S.A. Mus., vol. x, pt. 11, p. 433, 1914.

Jaera pusilla n. sp.

♂.—Body nearly parallel-sided, inclined to be slightly narrower at the middle of body, with a few scattered setae, chiefly on the lateral margins.

Head without rostrum, anterior margin nearly straight, antero-lateral angles acute, lateral margins minutely serrulate. Eyes oval, composed of 7 ocelli.

Peraeon segments equal, without marked gap between the anterior

and posterior series, without distinct epimera, lateral margins not lacinate, minutely and obscurely serrulate, antero-lateral angles of 1st without strong spines.

Pleon a little longer than broad and longer than last 3 segments, oval, lateral margins minutely serrulate, distal margin slightly convex without median point, postero-lateral angles short and acute.

First antenna with very stout 1st joint, followed by 4 much more slender and gradually diminishing joints.

Second antennae lost.

Mandible and maxilliped as in *J. serrata* Brnrd. (1914, Ann. S.A. Mus., vol. x, pt. 11, p. 433, pl. xxxviii, A), *i.e.* the former with strong molar, the latter with epipod angular on outer margin.

Peraeopods all similar, biunguiculate.

First pleopods stout, lateral margins of peduncles slightly indented,

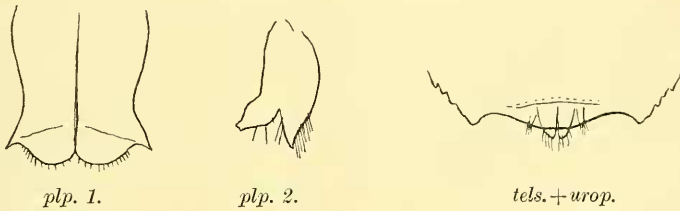


FIG. 4.—*Jaera pusilla* n. sp. First and second pleopods of male : apex of pleon with uropods.

outer apical angles shortly produced in a sharp point, rami broader than long, with setulose apical margins.

Second pleopods small in comparison, peduncle lanceolate, apex acute, setulose, inner ramus situate unusually near apex of peduncle, bulbous, (apparently) without distal filamentous portion, no visible outer ramus.

Uropods small, inserted within the distal margin of pleon, inner rami contiguous, projecting slightly beyond pleon, outer rami smaller, peduncles not distinguishable.

Length.—1.75 mm. ; *breadth*, 0.5 mm.

Colour.—In spirit, whitish, eyes brown.

Locality.—Lion's Head (Cape Peninsula), S.E., distant 22 miles, 95 fathoms, 1 ♂, 6/3/00. S.S. "Pieter Faure." (S.A.M., No. A 5947.)

This species is closely allied to *J. serrata* Brnrd., and is provisionally assigned to the genus *Jaera* on account of the 1st antennae, mandibles, and uropods. The 1st pleopods bear considerable resemblance to those of *J. marina*.

PSEUDOJANIRA g. n.

Similar to *Janira* but with well-developed rostral process (? a projection of the epistome), subchelate 1st peraeopods formed by enlargement of the 6th (not the 5th) joint with nearly transverse palm, eyes well within the lateral margins of the head, and epimera absent.

Although at first sight apparently belonging to the genus *Stenetrium*, and although there is only the one ♀ specimen, the large opercular 1st pleopods show beyond a doubt that this form must be placed in the *Jaeridae*. The expansion of the 6th joint of the 1st peraeopods, instead of the 5th as in *Janira*, necessitates a new genus.

I was not able to satisfy myself whether the rostral process was a projection of the frontal margin proper or of the epistome, but it appeared to be the latter.

Pseudojanira stenetrioides n. sp.

Body rather broad in proportion to length, moderately convex, quite smooth and nonsetose.

Head broader than long, antero-lateral angles sharply pointed and curved forwards but not produced. Frontal margin (? or epistome) produced into a prominent rostrum, apically rounded and set with about 10 spiny points.

Peraeon segments subequal in length, divided though not sharply into an anterior and posterior series, antero-lateral angles of segment 1 pointed but not produced, of segments 2-4 quadrate but not pointed. Postero-lateral angles of segments 5-7 also quadrate. All the peraeopods can be completely withdrawn under the margins of the peraeon.

Pleon subcircular, not longer than broad, side and distal margins evenly rounded and entire.

Antenna 1 with short flagellum of 3 (possibly 4 joints).

Antenna 2 with distinct scale on outer margin of 3rd joint, distal joints and flagellum lost.

Mandibles normal, cutting edge 3-4-dentate, secondary cutting edge in left 3-dentate, spine row with 5 spines in left, 8 in right, molar well developed.

Maxilliped, 2nd joint not elongate (thus different from *Stenetrium*), inner plate about as broad as long, 2nd and 3rd joints of palp only very moderately expanded, not as wide as inner plate, epipod reaching 2nd joint of palp, outer margin not very angular.

Peraeopod 1 resembling that of a *Stenetrium*, 4th joint with upper

apex produced into a spine, 5th short and triangular, 6th subovate, broad, palm straight and nearly transverse, defined by a strong spine and set with several spine-setae, finger matching palm, unguis just overlapping spine at angle of palm.

Peraeopods 2-7 all similar, normal and biunguiculate.

Operculum (first pleopods) subcircular, margin nonsetose.

Uropods inserted on ventral surface of pleon, well within margin,

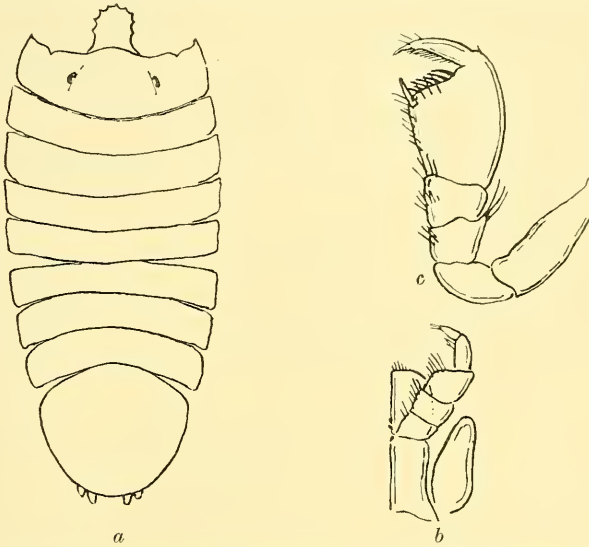


FIG. 5.—*Pseudojanira stenetrioides* n.g. et sp. a, Dorsal view of whole animal; b, maxilliped; c, first peraeopod.

peduncle not visible from above, about as broad as long, rami short, stout, apices obtuse, outer ramus slightly shorter than inner.

Length.—3 mm.; *breadth*, 1.3 mm.

Colour.—Whitish.

Locality.—Zululand coast, in a coral (H. W. Bell-Marley, 1920). 1 ♀. (S.A.M., No. A 6295.)

FAMILY BOPYRIDAE.

Gen. EPIPENAEON Nobili.

1906. *Epipenaeon*. Nobili, Atti. Ac. Sci. Torino, vol. xli, p. 3.

1910. „ Thielemann, Abh. K. Ak. Wiss. München, II, Suppl., Bd. 3 Abh., p. 79.

Epipenaeon japonicum Thielemann.

1910. *Epipenaeon japonica*. Thielemann, *loc. cit.*, p. 79, pl. ii, fig. 31, text-figs. 86, 87.

A male and female agreeing in all essentials with Thielemann's description.

The front margin of the head and the outer margins of the epimeral plates (2 on the left and the anterior 4 on the right side) irregularly crenulate. The 6th pleon segment is quite obsolete in dorsal view.

Length.—♀ 16 mm., ♂ 4.25 mm.; *breadth*, ♀ 12 mm., ♂ 1.5 mm.

Locality.—Delagoa Bay (Dr. Gilchrist, July 1919). In the right branchial cavity of *Penaeopsis monoceros* Fabr.

Geogr. Distribution.—Japan, on *Penaeus* sp. (Thielemann).

FAMILY CABIROPSIDAE.

1895. *Cabiropsidae*. Giard and Bonnier, Bull. Sci. Fr., vol. xxv, pp. 421, 441, 443.

1920. ,, Caullery and Mesnil, Bull. Biol., vol. liv, fasc. 1, p. 1.

1920. ,, Barnard, Ann. S. Afr. Mus., vol. xvii, pt. 5, p. 431.

Sars (1899, Crust. Norw., vol. ii, p. 231) and Hansen (1916, Dan. Ingolf. Exp. Crust. Malac., vol. iii, No. 5, p. 212) do not separate this family from the *Cryptoniscidae*. Hansen (*loc. cit.*, pp. 214, 216) describes two new genera and Caullery and Mesnil have recently described another.

This family, all the members of which are parasitic on other Isopods, comprises the following genera :—

<i>Cabirops</i> Kossm., 1884,	parasitic on	<i>Bopyridae</i> .
<i>Clypeoniscus</i> G. & B., 1895,	,,	<i>Idoteidae</i> and <i>Stenetriidae</i> .
<i>Munnoniscus</i> G. & B., 1895,	,,	<i>Munnopsidae</i> .
<i>Seroloniscus</i> G. & B., 1895,	,,	<i>Serolidae</i> .
<i>Gnomoniscus</i> G. & B., 1895,	,,	<i>Podascon</i> , a parasite on Amphipods.
<i>Arcturocheres</i> Hans., 1916,	,,	<i>Astacillidae</i> .
<i>Astacilloechus</i> Hans., 1916,	,,	,,
<i>Ancyroniscus</i> C. & M., 1920,	,,	<i>Sphaeromidae</i> .

To these it is now necessary to add a ninth genus parasitic on

another family of Isopods: the *Aegidae*. It is regrettable that the male is unknown, but the form of the adult female is sufficiently distinctive.

AEGONISCUS n. g.

Body of adult female ovoid, the lateral portions swollen into 6 large bilobulate ovigerous lobes, extending nearly from the medio-dorsal line to the medio-ventral line, completely hiding the ventral surface with its 6 pairs of valvular lamellae. No caudal projection. No fixing apparatus.

Aegoniscus gigas n. sp.

Ovoid nearly symmetrical, 23 mm. long, 16 mm. broad, and 10 mm. deep. Dorsal surface mutilated so that the shape and position of the opaque area is not discernible, the lateral ovigerous lobes, however, nearly reaching the middle line. Ventral surface completely hidden by the lower divisions of the lateral lobes, with 6 pairs of valvular lamellae. At the anterior end, hidden under the 1st pair of lateral lobes, is a pair of low bilobulate projections probably representing the

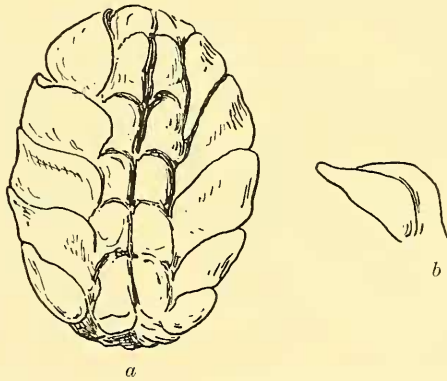


FIG. 6.—*Aegoniscus gigas* n.g. et sp. a, Ventral view, $\times 2$; b, first pereopod, left side.

2 pairs of antennae, and behind these the short, papilliform, unjointed, and apically acute 1st paraeopods.

The specimen was found in the brood-pouch of an *Aega semicarinata* Miers (described in Ann. S. Afr. Mus., vol. x, pt. 11, 1914, as *urotoma* Brnrd.; determination emended, *id.*, *ibid.*, vol. xv, pt. 3, 1916), measuring 53 mm. in length. The parasite almost completely filled

up the brood-pouch in which a few shrivelled eggs of the host still remained (*cf.* Caullery and Mesnil, *loc. cit.*, pp. 34, 35).

The eggs of the parasite measure $\frac{1}{2}$ mm., so that when the lateral lobes are full the number of eggs produced must be enormous.

Locality.—Off Cape Point, 180 fathoms. (S.A.M., No. A 6313, No. of host, 150971.)